

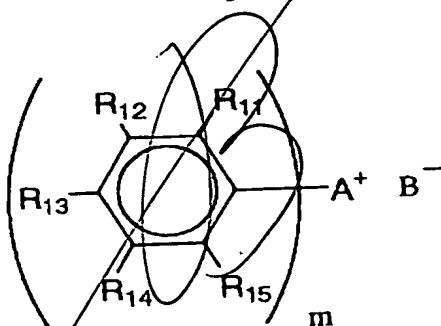
WHAT IS CLAIMED IS:

1. A positive radiation-sensitive composition comprising:

- (a) a resin whose solubility in an alkali developer increases by the action of an acid;
- (b) a compound that generates a carboxylic acid having a molecular weight of 100 or less upon irradiation with an actinic ray or a radiant ray;
- (c) a surfactant; and
- (d) a solvent.

2. The positive radiation-sensitive composition as claimed in claim 1, which further comprises (b') a compound that generates a sulfonic acid upon irradiation with an actinic ray or a radiant ray.

3. The positive radiation-sensitive composition as claimed in claim 1, wherein the compound (b) is a compound represented by the following formula (I):

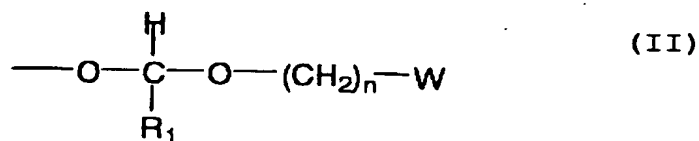


(I)

wherein R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub> and R<sub>15</sub> each independently represents a hydrogen atom, a straight chain, branched or cyclic alkyl

group, a straight chain, branched or cyclic alkoxyl group, a hydroxyl group, a halogen atom, or  $-S-R_0$ ;  $R_0$  represents a straight chain, branched or cyclic alkyl group, or an aryl group;  $A^+$  represents  $S^+$  or  $I^+$ ;  $B^-$  represents  $CH_3COO^-$ ,  $C_2H_5COO^-$  or  $C_3H_7COO^-$ ; and  $m$  represents 2 or 3.

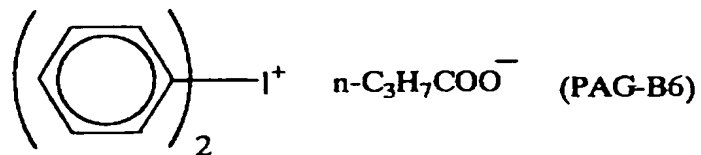
4. The positive radiation-sensitive composition as claimed in claim 1, wherein the resin (a) has an acid-decomposable group represented by the following formula (II):



wherein  $R_1$  represents an alkyl group having from 1 to 4 carbon atoms;  $W$  represents an amino group, an ammonium group, a mercapto group, a substituted or unsubstituted aryl group, a substituted or unsubstituted cycloalkyl group, or an organic group containing (i) at least one atom selected from the group consisting of an oxygen atom, a nitrogen atom, a sulfur atom, a phosphorus atom and a silicon atom, and (ii) at least one carbon atom; and  $n$  represents a natural number of from 1 to 4.

5. The positive radiation-sensitive composition as claimed in claim 1, wherein the resin (a) is a resin in which phenolic hydroxyl groups in an alkali-soluble resin are at

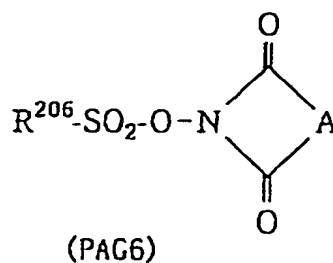
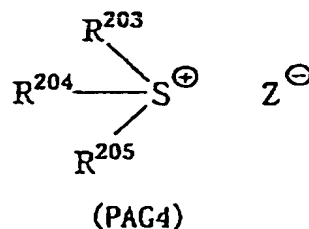
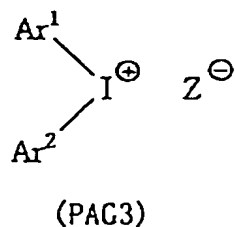




8. The positive radiation-sensitive composition as claimed in claim 7, wherein the compound (b) is at least one compound selected from the group consisting of the above (PAG-B1) and (PAG-B4):

9. The positive radiation-sensitive composition as claimed in claim 1, which contains the compound (b) in an amount of from 1 to 20 wt% based on the solid contents.

10. The positive radiation-sensitive composition as claimed in claim 2, wherein the compound (b') is a compound represented by the following formula (PAG3), (PAG4) or (PAG6):

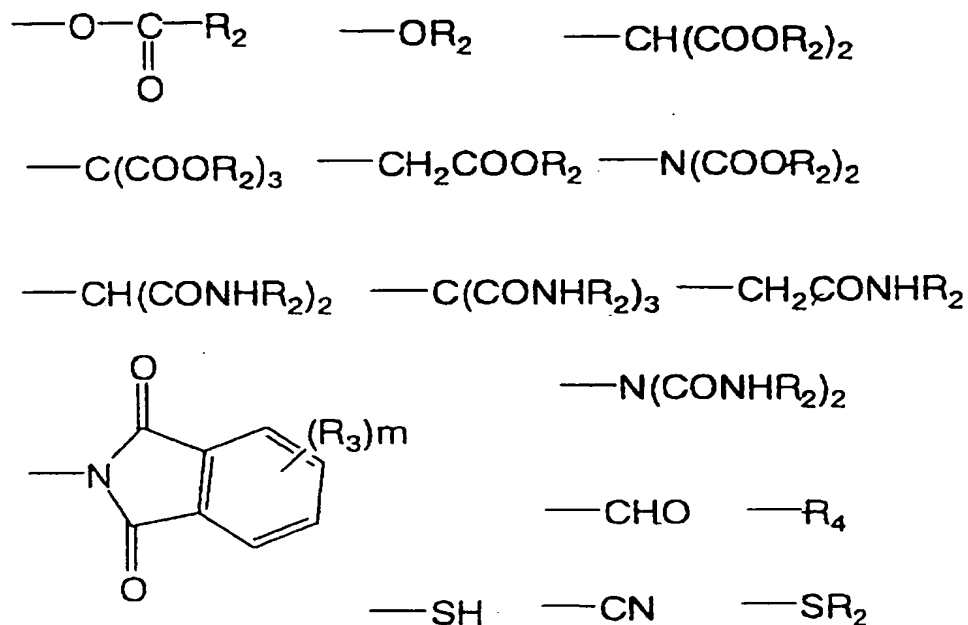


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wherein  $\text{Ar}^1$  and  $\text{Ar}^2$  each independently represents a substituted or unsubstituted aryl group;  $\text{R}^{203}$ ,  $\text{R}^{204}$  and  $\text{R}^{205}$  each independently represents a substituted or unsubstituted alkyl or aryl group;  $\text{R}^{206}$  represents a substituted or unsubstituted alkyl or aryl group; A represents a substituted or unsubstituted alkylene, alkenylene or arylene group.

11. The positive radiation-sensitive composition as claimed in claim 2, which contains the compound (b') in an amount of from 1 to 20 wt% based on the solid contents.

12. The positive radiation-sensitive composition as claimed in claim 4, wherein W of said formula (II) is a group represented by the following formula:



wherein  $\text{R}_2$  represents a hydrogen atom, a straight chain, branched

or cyclic alkyl group having from 1 to 6 carbon atoms, a straight chain, branched or cyclic alkenyl group having from 2 to 6 carbon atoms, a substituted or unsubstituted aryl group, or a substituted or unsubstituted aralkyl group ; R<sub>3</sub> represents a hydrogen atom, a straight chain, branched or cyclic alkyl group having from 1 to 6 carbon atoms, a straight chain, branched or cyclic alkoxy group having from 1 to 6 carbon atoms, a halogen atom, a nitro group, an amino group, a hydroxyl group, or a cyano group; R<sub>4</sub> represents a substituted or unsubstituted aryl group, or a substituted or unsubstituted cycloalkyl group having from 3 to 15 carbon atoms; m represents a natural number of from 1 to 4.

13. The positive radiation-sensitive composition as claimed in claim 4, wherein the resin (a) is a resin in which 5 to 45 mol% of an entire phenolic hydroxyl groups in an alkali-soluble resin are protected with an acid-decomposable group represented by the formula (II).

14. The positive radiation-sensitive composition as claimed in claim 1, wherein the resin (a) has a weight average molecular weight of from 3,000 to 80,000.

15. The positive radiation-sensitive composition as claimed in claim 1, wherein the surfactant (c) contains at least one of a fluorine atom and a silicon atom.